



**NTSB** National Transportation Safety Board

---

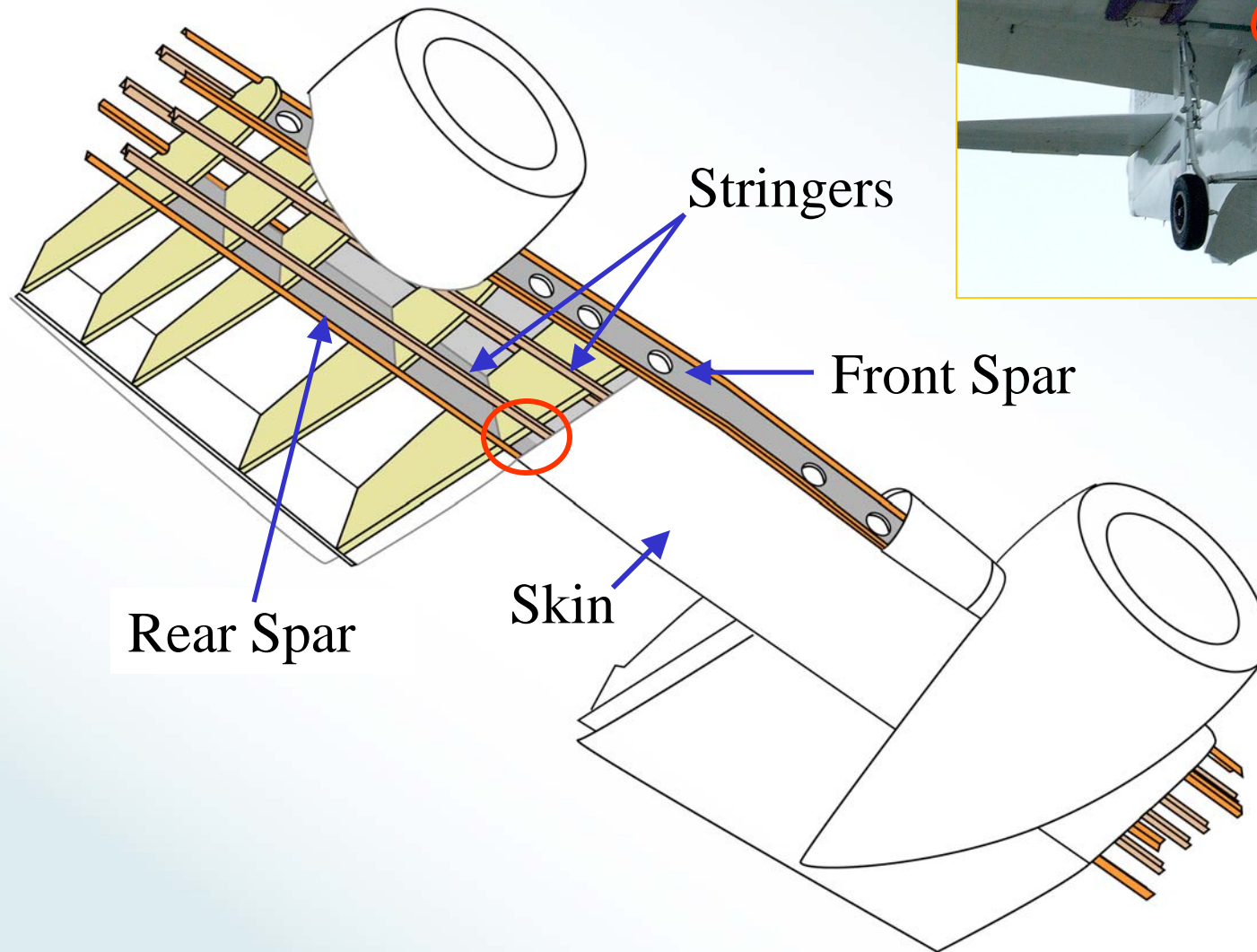
*Office of Aviation Safety*

# **Fatigue Cracks and Ineffective Repairs**

Matthew R. Fox, Ph.D.,  
Materials Laboratory

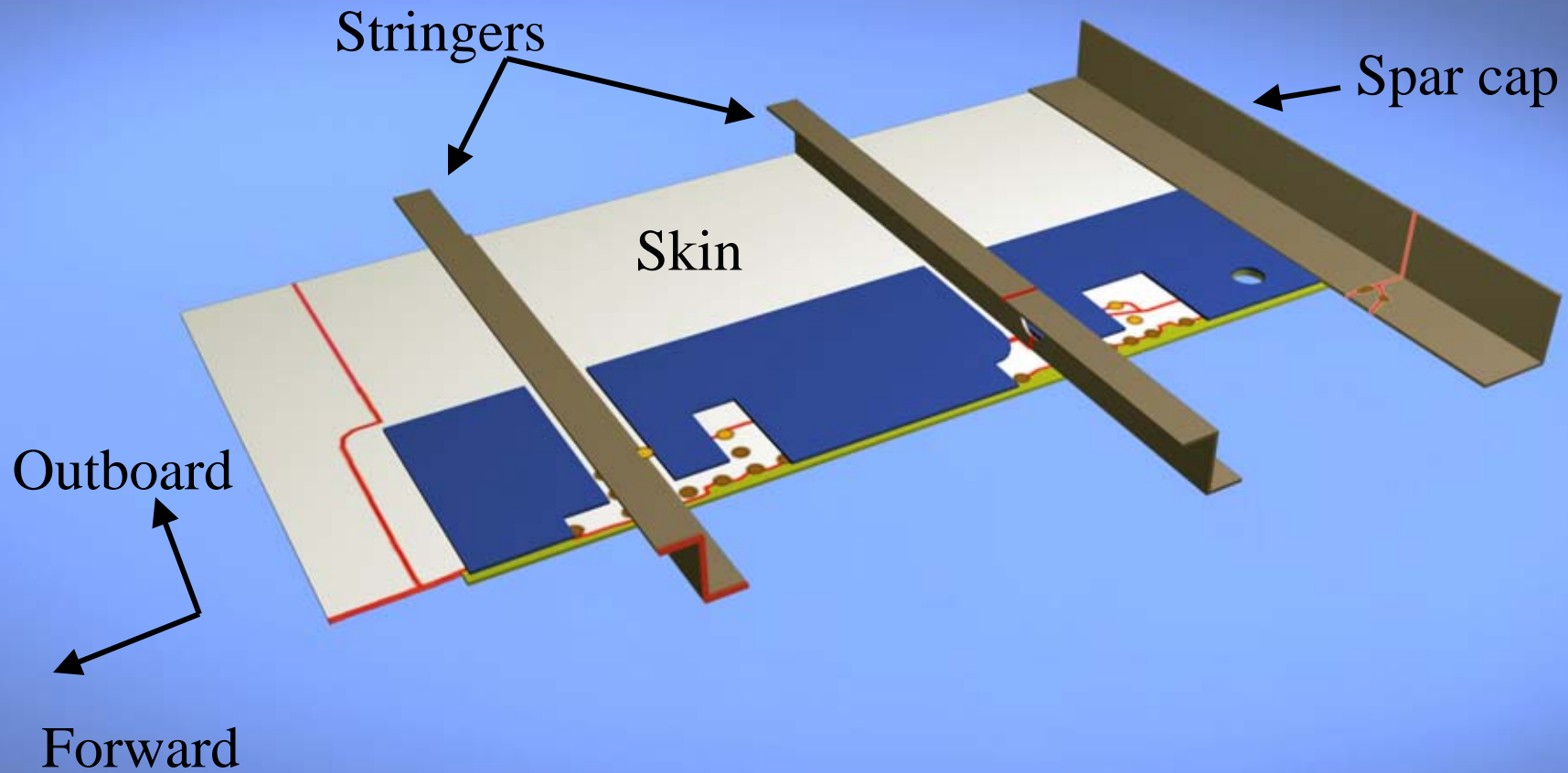
Brian K. Murphy,  
Structures Group Chairman

# Wing Structure

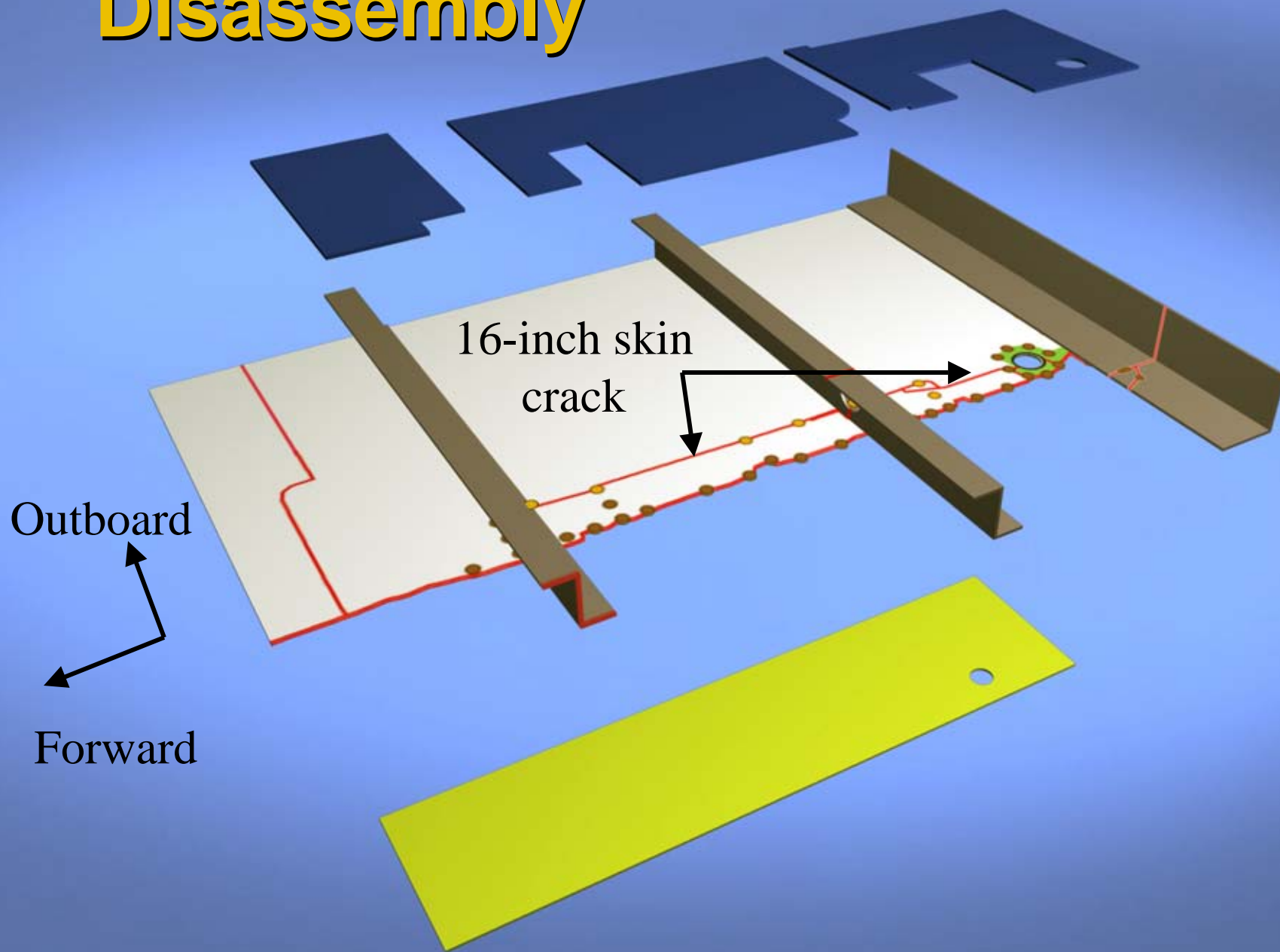




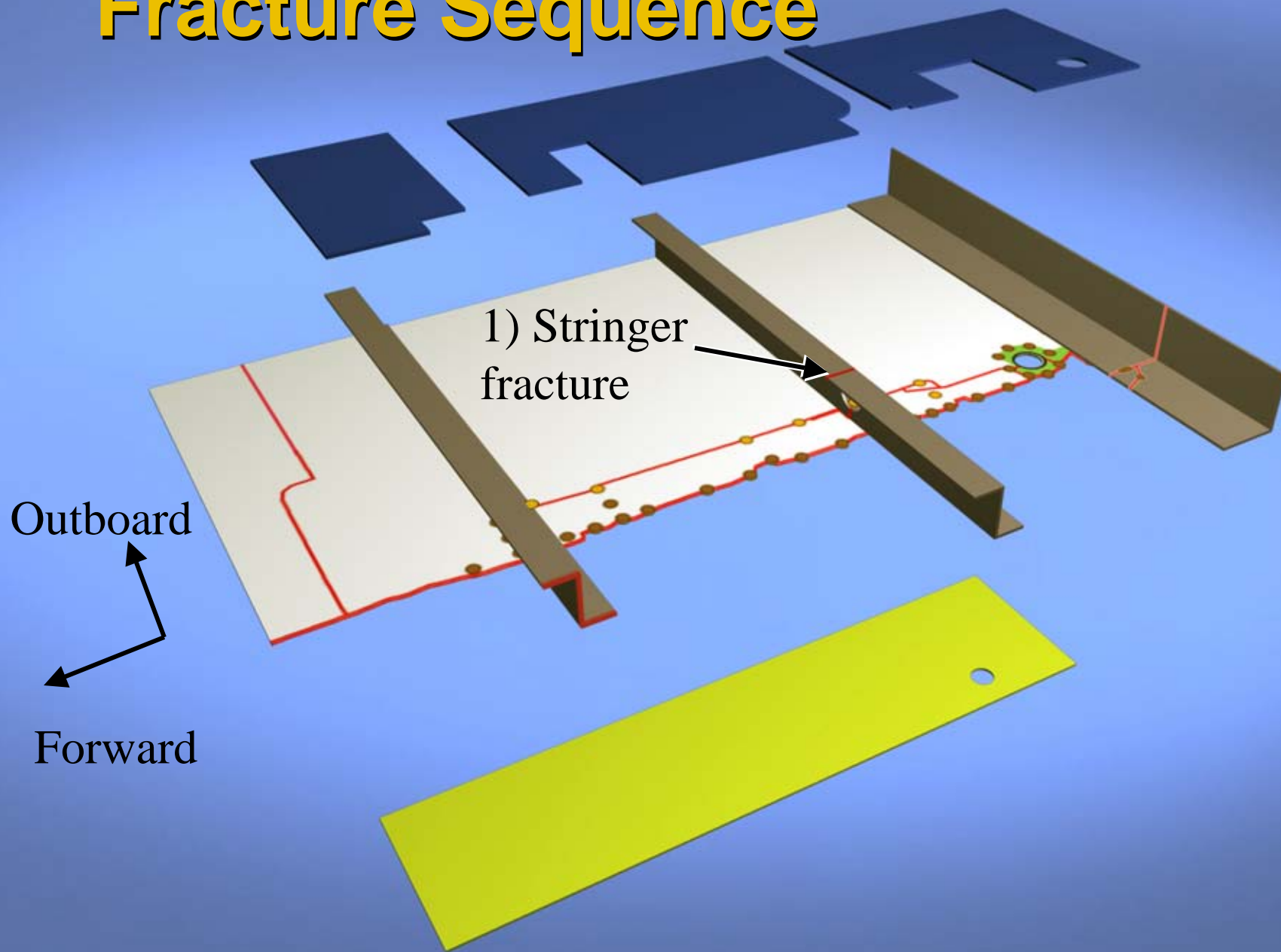
# Repair Doublers



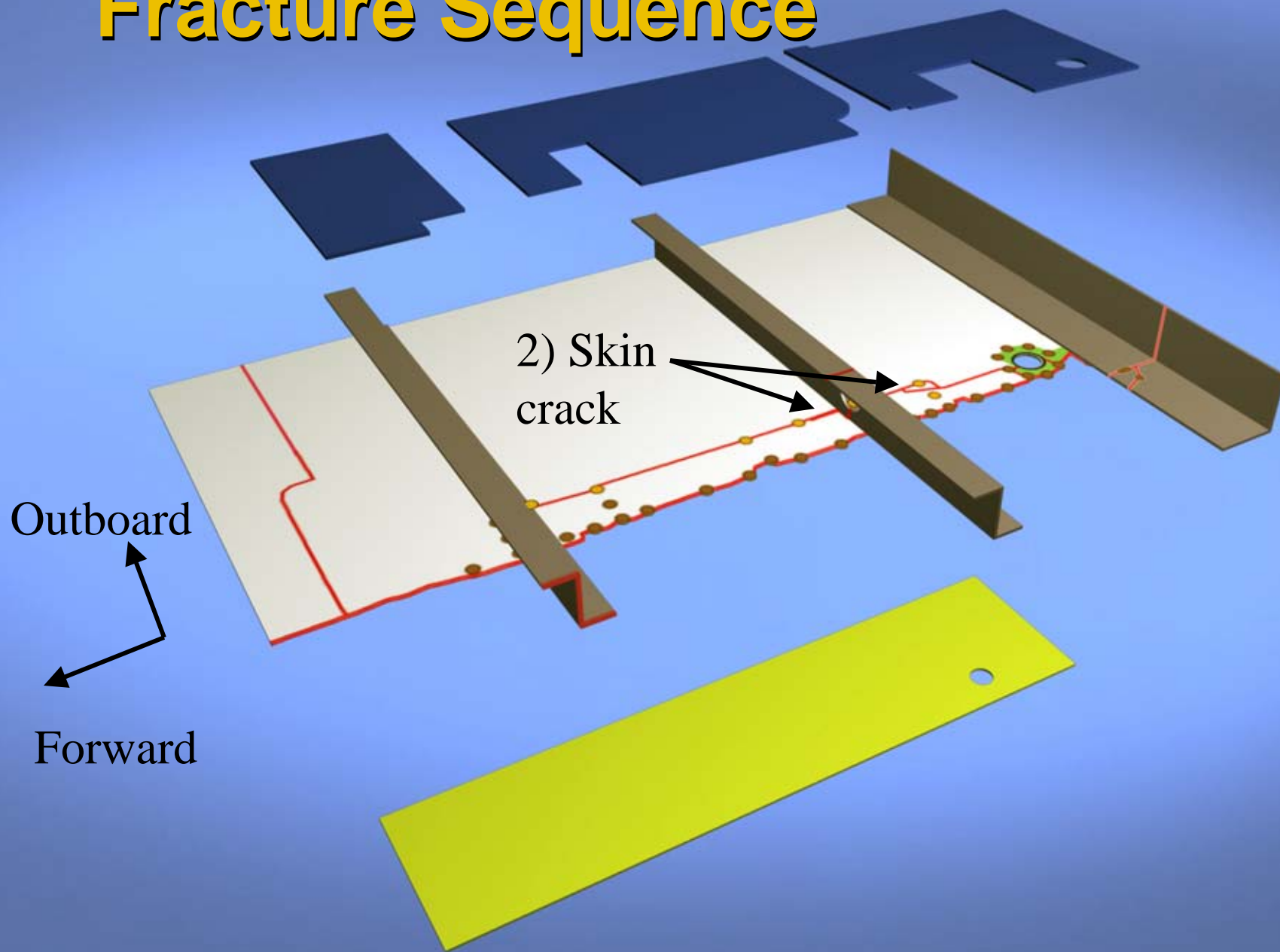
# Disassembly



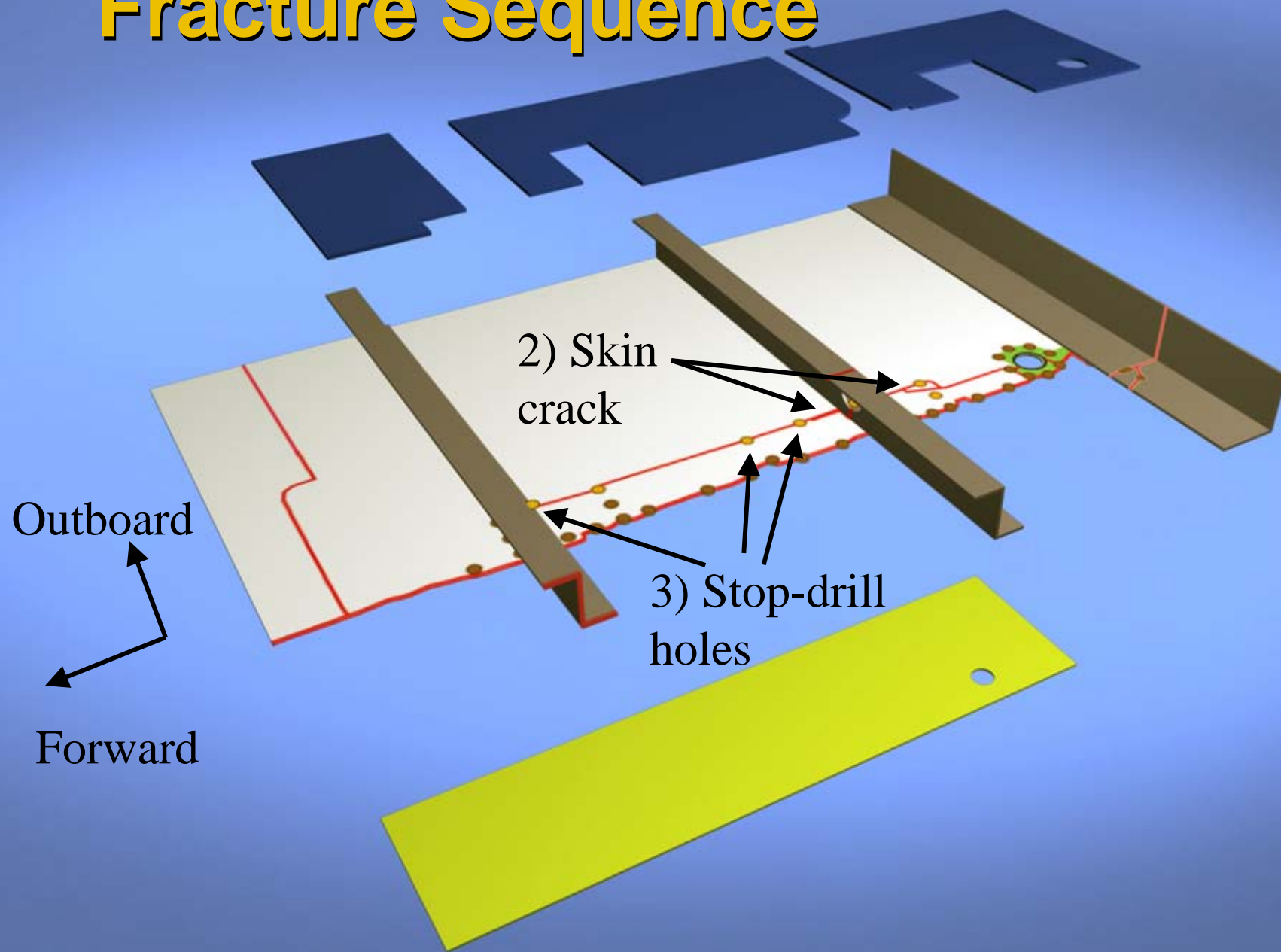
# Fracture Sequence



# Fracture Sequence

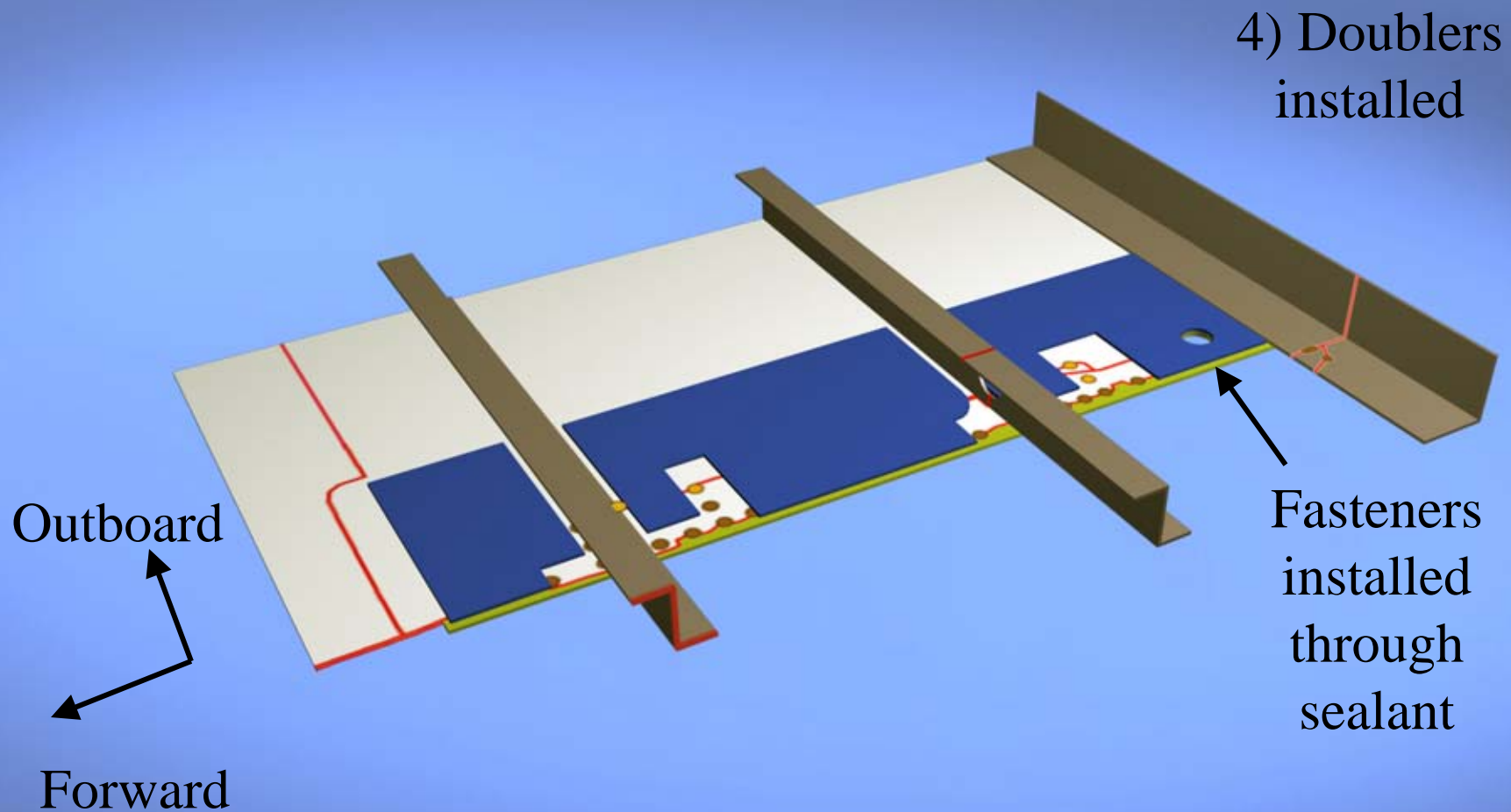


# Fracture Sequence



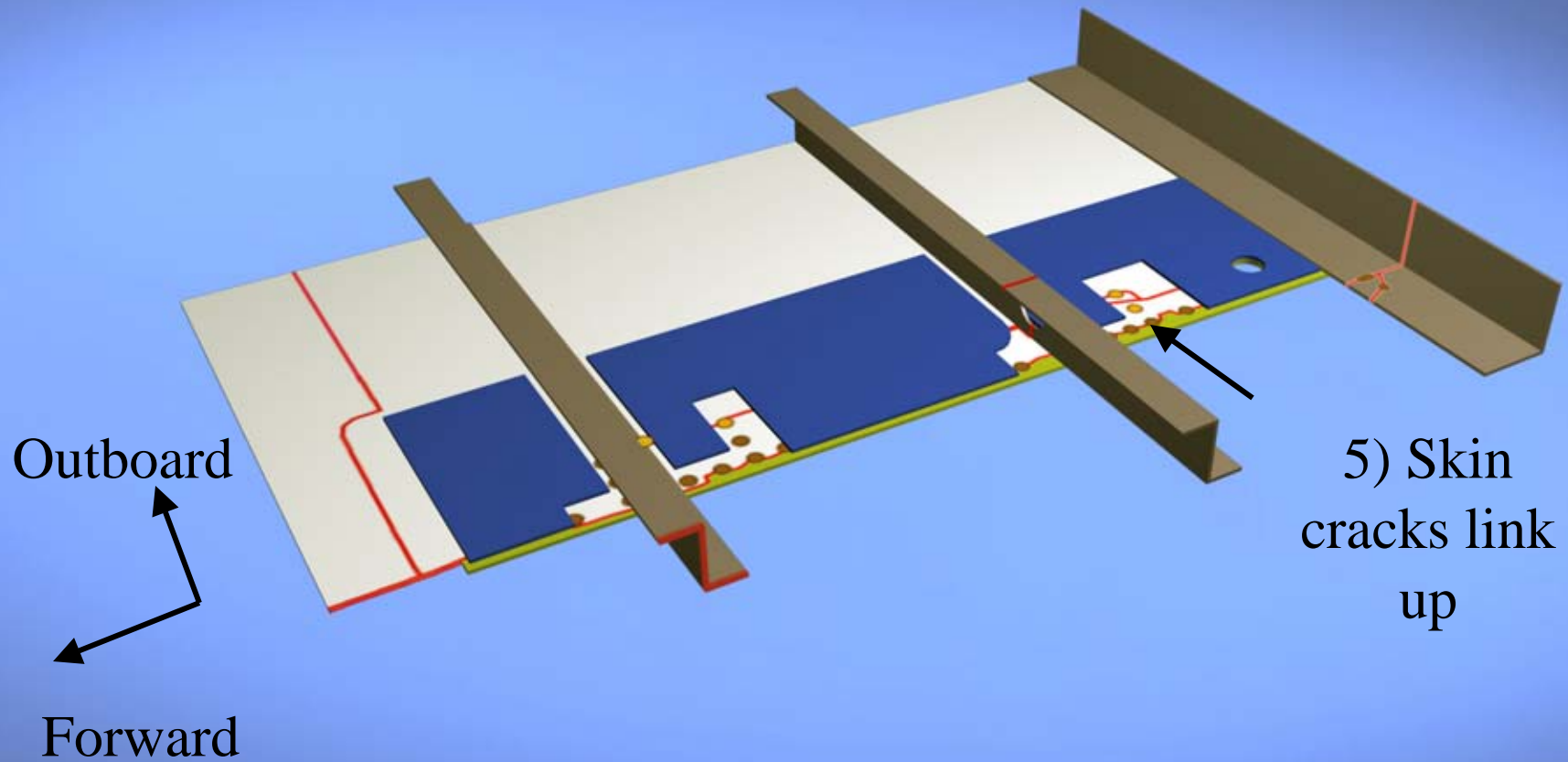


# Fracture Sequence

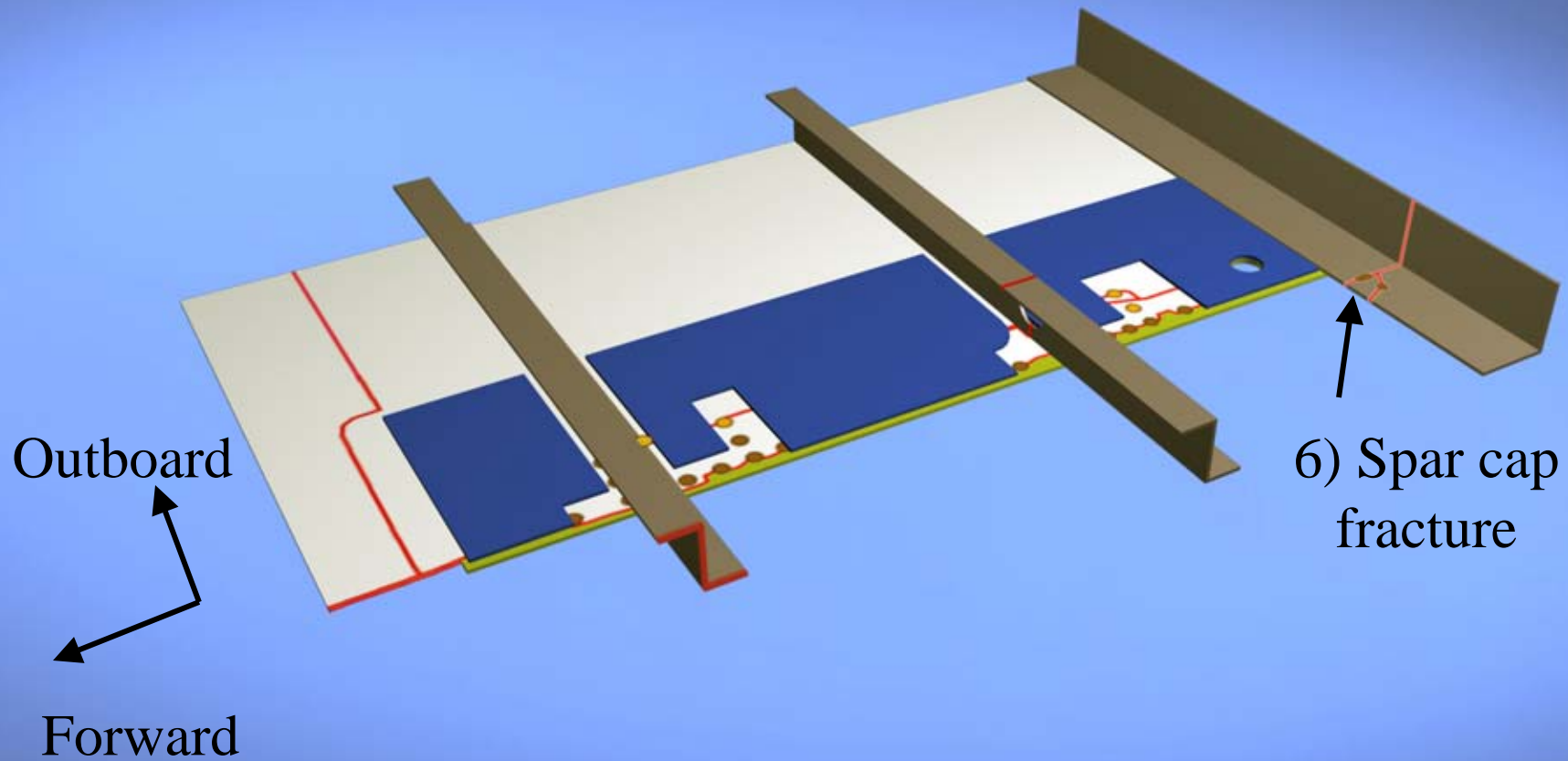




# Fracture Sequence



# Fracture Sequence





**NTSB**